

CLAIMS

We claim:

1 1. A method of making a phase angle correction in a phase tracking loop,
2 comprising the steps of:

3 calculating a phase angle error in a signal;

4 calculating a decision value based upon a first path metric of a plurality of
5 path metrics corresponding to a plurality of paths through a trellis decoder

6 calculating a confidence value based upon the first path metric and a second
7 path metric of the plurality of path metrics;

8 adjusting the phase angle error based upon the confidence value and the
9 decision value; and

10 modifying the signal based upon the adjusted phase angle error.

1 2. The method of claim 1, wherein the phase angle is calculated by a phase lock
2 loop.

1 3. The method of claim 1, wherein the signal is the output of a comb filter.

1 4. The method of claim 1, wherein the signal is an Advanced Television Systems
2 Committee (ATSC) signal.

1 5. The method of claim 1, wherein the step of calculating the confidence value
2 comprises the steps of:

3 subtracting the second path metric from the first path metric to create a
4 distance value; and

5 setting the confidence metric based upon the distance value.

1 6. The method of claim 5, wherein the first path metric is a best path metric and
2 the second path metric is a second best path metric.

1 7. The method of claim 5, wherein the distance value is set to a first threshold
2 value if the distance value is greater than a second threshold value.

1 8. The method of claim 1, wherein the step of calculating an confidence value is
2 based upon a nominal trace-back length.

1 9. A soft trellis slicer, comprising:
2 logic for calculating a plurality of path metrics of a signal based upon a
3 plurality of possible paths of the signal through a trellis decoder;
4 logic for setting a soft slicer decision value based upon a first path metric of
5 the plurality of path metrics;
6 logic for calculating a confidence value based upon a difference between the
7 first path metric of the plurality of path metrics and a second path metric of the
8 plurality of path metrics;
9 a phase tracking loop, comprising:
10 logic for calculating a phase angle error of the signal; and
11 logic for adjusting the phase angle error based upon the soft slicer
12 decision value and the confidence value.

1 10. The soft trellis slicer of claim 9, the phase tracking loop further comprising:

2 a phase lock loop for calculating the phase angle error.

1 11. The soft trellis slicer of claim 9, wherein the signal is the output of a comb
2 filter.

1 12. The soft trellis slicer of claim 9, wherein the signal is an Advanced Television
2 Systems Committee (ATSC) signal.

1 13. The soft trellis slicer of claim 9, wherein the confidence value is set to a first
2 threshold value if the confidence value is greater than a second threshold value.

1 14. The soft trellis slicer of claim 9, wherein the first path metric is a best path
2 metric and the second path metric is a second best path metric.

1 15. The soft trellis slicer of claim 9, wherein the logic for calculating the plurality
2 of path metrics depends upon a nominal trace-back length.

1 16. A high definition television (HDTV) receiver, comprising:

2 a trellis decoder, the trellis decoder comprising:

3 a soft trellis slicer, comprising:

4 logic for calculating a plurality of path metrics of a signal based
5 upon a plurality of possible paths of the signal through a trellis
6 decoder;

7 logic for calculating a confidence value based upon a difference
8 between a first path metric of the plurality of path metrics and a second

9 path metric of the plurality of path metrics;
10 logic for setting a soft slicer decision value based upon the first
11 path metric; and
12 a phase tracking loop, comprising:
13 logic for calculating a phase angle error of the signal; and
14 logic for adjusting the phase angle error based upon the soft slicer
15 decision value and the confidence value.

1 17. The HDTV receiver of claim 16, the phase tracking loop further comprising:
2 a phase lock loop for calculating the phase angle error.

1 18. The HDTV receiver of claim 16, wherein the signal is the output of a comb
2 filter.

1 19. The HDTV receiver of claim 16, wherein the confidence value is set to a
2 threshold value if the confidence value is greater than the threshold value.

1 20. The HDTV receiver of claim 16, wherein the logic for calculating the plurality
2 of path metrics depends upon a nominal trace-back length.